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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/835,312	04/13/2001	Russell C. Hay	M00-272900	5702

7590 08/03/2004

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EXAMINER	
BARNES, CRYSTAL J	
ART UNIT	**PAPER NUMBER**
2121	

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/835,312	HAY, RUSSELL C.	
	Examiner	Art Unit	
	Crystal J. Barnes	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The following is an initial Office Action upon examination of the above-identified application on the merits. Claims 1-23 are pending in this application.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: network 122 (first occurrence on page 6 line 18) does not appear in figure 1.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: network 116 in figure 1, boxes 200 and 212 in figure 2, boxes 300 and 316 in figure 3, and boxes 400 and 412 in figure 4 are not mentioned in the specification.

4. Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the

Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: reference characters "102" and "11-113" have both been used to designate name servers on page 7 line 15. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-23 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,725,253 B1 to Okano et al.

As per claim 1, the Okano et al. reference discloses an apparatus that translates host names into Internet Protocol (IP) addresses, comprising: a plurality of name servers (see column 9 lines 30-36, "servers 110, 210, 310, 320, 510, 520, 610, 620"), wherein each name server ("servers 110, 210, 310, 320, 510, 520, 610, 620") is configured to translate a host name (see column 9 lines 49-53, "representative domain name") into a corresponding IP address ("IP address"); and a plurality of load balancers (see column 9 lines 30-36, "load balancing apparatus 410, 420, 430, 500, 600") coupled to the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620"), wherein each load balancer ("load balancing apparatus 410, 420, 430, 500, 600") is configured to, receive requests for host name translations (see column 9 lines 56-64, "DNS inquiry"), and to distribute the requests ("DNS

inquiry") between the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620") so as to balance load (see column 10 lines 39-43, "load balancing apparatus group 400") across the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620"); wherein the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") are configured to operate in parallel in distributing requests ("DNS inquiry") between the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620").

As per claim 2, the Okano et al. reference discloses each of the plurality of load balancers ("load balancing apparatus 500, 600") is associated with its own IP address (see column 9 lines 60-62 and column 10 lines 17-19, "IP address of the second load balancing apparatus 500 or 600"), and is configured to process translation requests ("DNS inquiry") directed its own IP address (see column 11 lines 55-61, "IP address ... appended to the second load balancing apparatus 500 and 600").

As per claim 3, the Okano et al. reference discloses each of the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") is configured to take over (see column 10 lines 59-61, "backup") load balancing operations for one or more failed load balancers ("load balancing

apparatus 410, 420, 430, 500, 600") in the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600").

As per claim 4, the Okano et al. reference discloses load balancers in the plurality of load balancers ("load balancing apparatus 410, 420, 430") are organized into a ring (see column 10 lines 44-48, 52-55, "complex constitution"); and wherein each load balancer ("load balancing apparatus 410, 420, 430, 500, 600") is configured to take over load balancing operations (see column 10 lines 59-61, "backup") for a neighboring load balancer (see column 10 lines 55-58, "primary 410") in the ring, if the neighboring load balancer fails ("primary 410 has stopped functioning").

As per claim 5, the Okano et al. reference discloses each load balancer in the plurality of load balancers is a proxy server that is configured to accept user datagram protocol (UDP) and transmission control protocol (TCP) connections (see column 1 lines 49-52, "TCP and UDP") from domain name system (DNS) clients (see column 2 lines 11-16, "client-side DNS server") and to forward corresponding UDP or proxy TCP requests ("DNS inquiry") to the plurality of name servers (see column 2 lines 43-58, "server-side DNS server").

As per claim 6, the Okano et al. reference discloses each of the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") is configured to distribute translation requests ("DNS inquiry") between the plurality of name servers ("servers 510, 520, 610, 620") based upon measured response times (see column 11 lines 10-14, 36-41, "measurement request") of the plurality of name servers ("servers 510, 520, 610, 620").

As per claim 7, the Okano et al. reference discloses further comprising an internal communication network (see column 9 lines 38-42, "load balancing site LBS") that couples the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") with the plurality of name servers (service sites SS_1, SS_2).

As per claim 8, the Okano et al. reference discloses a method for translating a host name into an Internet Protocol (IP) address, comprising: receiving a translation request (see column 9 lines 56-63 and column 10 lines 13-21, "DNS inquiry") to translate the host name (see column 9 lines 49-53 and column 10 lines 4-10, "representative domain name") into the IP address ("IP address"); selecting a name server ("servers 110, 210, 310, 320, 510, 520, 610, 620") from a plurality of name servers ("servers 110, 210, 310,

320, 510, 520, 610, 620") to process the translation request ("DNS inquiry") based upon a measured load (see column 11 lines 10-14, 36-41, "measurement request") of the plurality of name servers ("servers 110, 210, 510, 520, 610, 620"), so that overloaded name servers (see columns 10-11 lines 66-3, 24-28 "operating status of servers") will not be selected; and forwarding the translation request ("DNS inquiry") to the selected name server (see column 11 lines 3-4, 29-30, "server in better operating status") so that the selected name server ("server in better operating status") can translate the host name ("representative domain name") into the IP address ("IP address").

As per claim 9, the Okano et al. reference discloses receiving the translation request ("DNS inquiry") involves receiving the translation request ("DNS inquiry") at one of a plurality of load balancers (see column 10 lines 33-43, "load balancing apparatus 410, 420, 430, 500, 600"), wherein each load balancer ("load balancing apparatus 410, 420, 430, 500, 600") is configured to: receive translation requests ("DNS inquiry") for host name translations ("DNS response"); and to distribute the translation requests ("DNS inquiry") between the plurality of name servers ("servers 110, 210, 510, 520, 610, 620") so as to balance load (see column 10 lines 48-51, "load

balancing") across the plurality of name servers ("servers 110, 210, 510, 520, 610, 620").

As per claim 10, the Okano et al. reference discloses each of the plurality of load balancers ("load balancing apparatus 500, 600") is associated with its own IP address (see column 9 lines 60-62 and column 10 lines 17-19, "IP address of the second load balancing apparatus 500 or 600"), and is configured to process translation requests ("DNS inquiry") directed its own IP address (see column 11 lines 55-61, "IP address ... appended to the second load balancing apparatus 500 and 600").

As per claim 11, the Okano et al. reference discloses further comprising taking over load balancing operations (see column 10 lines 59-61, "backup"), if necessary, for one or more failed load balancers (see column 10 lines 55-58, "load balancing apparatus 410 has stopped functioning") in the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600").

As per claim 12, the Okano et al. reference discloses the plurality of load balancers ("load balancing apparatus 410, 420, 430") are organized into a ring (see column 10 lines 44-48, 52-55, "complex constitution"); and wherein each load balancer ("load balancing apparatus 410, 420, 430, 500,

600") is configured to take over load balancing operations (see column 10 lines 59-61, "backup") for a neighboring load balancer (see column 10 lines 55-58, "primary 410") in the ring.

As per claim 13, the Okano et al. reference discloses each load balancer in the plurality of load balancers is a proxy server that is configured to accept user datagram protocol (UDP) and transmission control protocol (TCP) connections (see column 1 lines 49-52, "TCP and UDP") from domain name system (DNS) clients (see column 2 lines 11-16, "client-side DNS server") and to forward corresponding UDP or proxy TCP requests ("DNS inquiry") to the plurality of name servers (see column 2 lines 43-58, "server-side DNS server").

As per claim 14, the Okano et al. reference discloses further comprising measuring a load (see column 11 lines 10-14, 36-41, "measurement request") on the plurality of name servers ("servers 510, 520, 610, 620") by periodically: sending an information request ("measurement request") to each name server ("servers 510, 520, 610, 620") in the plurality of name servers ("servers 510, 520, 610, 620"); and measuring a response time ("measurement result") to the information request ("measurement request")

for each name server ("servers 510, 520, 610, 620") in the plurality of name servers ("servers 510, 520, 610, 620").

As per claim 15, the Okano et al. reference discloses a method for performing failovers between a plurality of load balancers that are configured to balance requests for host name to IP address translations between a plurality of name servers that are coupled to the plurality of load balancers, comprising: sending a keep alive packet (see column 16 lines 38-44, "operation monitor message ") to a first neighboring load balancer ("load balancing apparatus 500, 600") in the plurality of load balancers ("load balancing apparatus 420, 430, 500, 600"); waiting for a response (see column 16 lines 45-51, "operation response message") to the keep alive packet ("operation monitor message ") in order to determine if the first neighboring load balancer ("load balancing apparatus 500, 600") remains alive (see column 16 lines 62-64, "operating normally"); if the first neighboring load balancer ("load balancing apparatus 500, 600") does not remain alive (see column 17 lines 1-6, "stopped operating"), taking over servicing of translation requests (see column 17 lines 30-33, "eliminating ... from the targets for primary sorting") directed to the first neighboring load balancer ("load balancing apparatus 500, 600").

As per claim 16, the Okano et al. reference discloses receiving a second keep alive packet (see column 18 lines 2-8, "operation monitor message") from a second neighboring load balancer ("load balancing apparatus 410") in the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600"); and sending a response (see column 16 lines 52-59, "operation monitor message") to the second keep alive packet "operation monitor message") to the second neighboring load balancer ("load balancing apparatus 410").

As per claim 17, the Okano et al. reference discloses each of the plurality of load balancers ("load balancing apparatus 500, 600") is associated with its own IP address (see column 9 lines 60-62 and column 10 lines 17-19, "IP address of the second load balancing apparatus 500 or 600"), and is configured to process translation requests ("DNS inquiry") directed its own IP address (see column 11 lines 55-61, "IP address ... appended to the second load balancing apparatus 500 and 600").

As per claim 18, the Okano et al. reference discloses the plurality of load balancers ("load balancing apparatus 410, 420, 430") are organized into a ring (see column 10 lines 44-48, 52-55, "complex constitution"); and wherein each load balancer ("load balancing apparatus 410, 420, 430, 500,

600") is configured to take over load balancing operations (see column 10 lines 59-61, "backup") for a neighboring load balancer (see column 10 lines 55-58, "primary 410") in the ring.

As per claim 19, the Okano et al. reference discloses each load balancer in the plurality of load balancers is a proxy server that is configured to accept user datagram protocol (UDP) and transmission control protocol (TCP) connections (see column 1 lines 49-52, "TCP and UDP") from domain name system (DNS) clients (see column 2 lines 11-16, "client-side DNS server") and to forward corresponding UDP or proxy TCP requests ("DNS inquiry") to the plurality of name servers (see column 2 lines 43-58, "server-side DNS server").

As per claim 20, the Okano et al. reference discloses further comprising distributing translation requests ("DNS inquiry") between the plurality of name servers ("servers 510, 520, 610, 620") based upon measured response times (see column 11 lines 10-14, 36-41, "measurement request") of the plurality of name servers ("servers 510, 520, 610, 620").

As per claim 21, the Okano et al. reference discloses an apparatus that translates host names into Internet Protocol (IP) addresses, comprising: a plurality of name servers (see column 9 lines 30-36, "servers

110, 210, 310, 320, 510, 520, 610, 620"), wherein each name server ("servers 110, 210, 310, 320, 510, 520, 610, 620") is configured to translate a host name (see column 9 lines 49-53, "representative domain name") into a corresponding IP address ("IP address"); and a plurality of load balancers (see column 9 lines 30-36, "load balancing apparatus 410, 420, 430, 500, 600") coupled to the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620"), wherein each load balancer ("load balancing apparatus 410, 420, 430, 500, 600") is configured to, receive requests see column 9 lines 56-64, "DNS inquiry") for host name translations (see column 9 lines 49-53, "representative domain name"), and to distribute the requests ("DNS inquiry") between the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620") so as to balance load (see column 10 lines 39-43, "load balancing apparatus group 400") across the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620"); wherein the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") are configured to operate in parallel in distributing requests ("DNS inquiry") between the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620"); wherein each of the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") is configured to take over (see column

10 lines 59-61, "backup") load balancing operations for one or more failed load balancers ("load balancing apparatus 410, 420, 430, 500, 600") in the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600"); and wherein each of the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") is configured to distribute translation requests ("DNS inquiry") between the plurality of name servers ("servers 510, 520, 610, 620") based upon measured response times (see column 11 lines 10-14, 36-41, "measurement request") of the plurality of name servers ("servers 510, 520, 610, 620").

As per claim 22, the Okano et al. reference discloses a method for translating a host name into an Internet Protocol (IP) address, comprising: receiving a translation request (see column 9 lines 56-63 and column 10 lines 13-21, "DNS inquiry") at one of a plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600") to translate the host name (see column 9 lines 49-53 and column 10 lines 4-10, "representative domain name") into the IP address ("IP address"); selecting a name server ("servers 110, 210, 310, 320, 510, 520, 610, 620") from a plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620") to process the translation request ("DNS inquiry") based upon a measured load (see column 11 lines 10-14, 36-

41, "measurement request") of the plurality of name servers ("servers 110, 210, 310, 320, 510, 520, 610, 620"), so that overloaded name servers (see columns 10-11 lines 66-3, 24-28 "operating status of servers") will not be selected; forwarding the translation request ("DNS inquiry") to the selected name server (see column 11 lines 3-4, 29-30, "server in better operating status") so that the selected name server ("server in better operating status") can translate the host name ("representative domain name") into the IP address ("IP address"); and taking over load balancing operations (see column 10 lines 59-61, "backup"), if necessary, for one or more failed load balancers (see column 10 lines 55-58, "load balancing apparatus 410 has stopped functioning") in the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600"); wherein each load balancer ("load balancing apparatus 410, 420, 430, 500, 600") is configured to distribute the translation requests ("DNS inquiry") between the plurality of name servers ("servers 110, 210, 510, 520, 610, 620") so as to balance load (see column 10 lines 48-51, "load balancing") across the plurality of name servers ("servers 110, 210, 510, 520, 610, 620").

As per claim 23, the Okano et al. reference discloses a method for performing failovers between a plurality of load balancers that are

configured to balance requests for host name to IP address translations between a plurality of name servers that are coupled to the plurality of load balancers, comprising: distribute translation requests ("DNS inquiry") between the plurality of name servers ("servers 510, 520, 610, 620") based upon measured response times (see column 11 lines 10-14, 36-41, "measurement request") of the plurality of name servers ("servers 510, 520, 610, 620"); sending a keep alive packet (see column 16 lines 38-44, "operation monitor message ") to a first neighboring load balancer ("load balancing apparatus 500, 600") in the plurality of load balancers ("load balancing apparatus 420, 430, 500, 600"); waiting for a response (see column 16 lines 45-51, "operation response message") to the keep alive packet ("operation monitor message ") in order to determine if the first neighboring load balancer ("load balancing apparatus 500, 600") remains alive (see column 16 lines 62-64, "operating normally"); if the first neighboring load balancer ("load balancing apparatus 500, 600") does not remain alive (see column 17 lines 1-6, "stopped operating"), taking over servicing of translation requests (see column 17 lines 30-33, "eliminating ... from the targets for primary sorting") directed to the first neighboring load balancer ("load balancing apparatus 500, 600"); receiving a second keep alive packet (see column 18

lines 2-8, "operation monitor message") from a second neighboring load balancer ("load balancing apparatus 410") in the plurality of load balancers ("load balancing apparatus 410, 420, 430, 500, 600"); and sending a response (see column 16 lines 52-59, "operation monitor message") to the second keep alive packet "operation monitor message") to the second neighboring load balancer ("load balancing apparatus 410").

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to load balancing in general:

USPN 6,735,631 B1 to Oehrke et al.

USPN 6,351,775 B1 to Yu

USPN 6,330,605 B1 to Christensen et al.

USPN 6,249,801 B1 to Zisapel et al.

US Pub. No. 2002/0120743 A1 to Shabtay et al.

US Pub. No. 2001/0049741 A1 to Skene et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703.308.3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cjb
26 July 2004

Ramesh Patel
RAMESH PATEL
PRIMARY EXAMINER 7/28/04
For Anthony Knight